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| Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i> | | | | Complete if Known | |
| Application Number | | 10/607,909 | | | |
| Filing Date | | June 27, 2003 | | | |
| First Named Inventor | | Sommadosi <i>et al.</i> | | | |
| Group Art Unit | | 1646 | | | |
| Examiner Name | | Unassigned | | | |
| Attorney Docket Number | | 06171.105088 IDX 1031 | | | |

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| Sheet | 1 | of | 7 |
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| U.S. PATENT DOCUMENTS | | | | | | | |
|------------------------|--------------------------|----------------------|-------------------------|--|--|---|----------------|
| Examiner Initials * | Cite No. ¹ | U.S. Patent Document | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages/Relevant Figures Appear | T ⁶ |
| | | Number | Kind Code (if known) | | | | |
| TM | AA | 3,798,209 | | Wilkowski, <i>et al.</i> | 03-19-1974 | | |
| ↓ | AB | RE29,835 | | Wilkowski <i>et al.</i> | 11-14-1978 | | |
| ↓ | AC | 4,522,811 | | Eppstein <i>et al.</i> | 06-11-1985 | | |
| ↓ | AD | 4,957,924 | | Beauchamp | 09-18-1990 | | |
| ↓ | AE | 5,149,794 | | Yatvin <i>et al.</i> | 09-22-1992 | | |
| ↓ | AF | 5,157,027 | | Biller <i>et al.</i> | 10-20-1992 | | |
| ↓ | AG | 5,194,654 | | Hostetler <i>et al.</i> | 03-16-1993 | | |
| ↓ | AH | 5,223,263 | | Hostetler <i>et al.</i> | 06-29-1993 | | |
| ↓ | AI | 5,256,641 | | Yatvin <i>et al.</i> | 10-26-1993 | | |
| ↓ | AJ | 5,411,947 | | Hostetler <i>et al.</i> | 05-02-1995 | | |
| ↓ | AK | 5,463,092 | | Hostetler <i>et al.</i> | 10-31-1995 | | |
| ↓ | AL | 5,543,389 | | Yatvin <i>et al.</i> | 08-06-1996 | | |
| ↓ | AM | 5,543,390 | | Yatvin <i>et al.</i> | 08-06-1996 | | |
| ↓ | AN | 5,543,391 | | Yatvin <i>et al.</i> | 08-06-1996 | | |
| ↓ | AO | 5,554,728 | | Basava <i>et al.</i> | 09-10-1996 | | |
| ↓ | ↓ | | | | | | |
| TM | AP | 6,312,662 | B1 | Erion <i>et al.</i> | 11-06-2001 | | |

| FOREIGN PATENT DOCUMENTS | | | | | | | | |
|--------------------------|-----------------------|-------------------------|-----------|-----------------------------------|---|--|---|----------------|
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| | | Office ³ | Number | Kind Code ² (if known) | | | | |
| TM | AQ | DE | 3,512,781 | A1 | Soc. Nat. Elf Aquitaine | 10-17-1985 | | |
| TM | AR | EP | 0,180,276 | B1 | Stamicarbon B.V. | 12-19-1988 | | |
| TM | AS | EP | 0,350,287 | B1 | Chimerix | 09-27-2000 | | |
| TM | AT | EP | 0,650,371 | B1 | State of Oregon | 11-15-2000 | | |
| TM | AU | WO | 89/02733 | A1 | Regents of the Univ. of California | 04-06-1989 | | |
| TM | AV | WO | 90/00555 | A1 | Vical Inc. | 01-25-1990 | | |
| TM | AW | WO | 91/16920 | A1 | Vical Inc. | 11-14-1991 | | |

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| Examiner Signature | /Traviss McIntosh III/ (04/28/2006) | Date Considered | 04/28/2006 |
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FOREIGN PATENT DOCUMENTS

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|------------------------|--------------------------|-------------------------|-----------|--------------------------------------|--|---|--|----------------|
| | | Office ³ | Number | Kind Code ² (if known) | | | | |
| TM | BA | WO | 91/18914 | A1 | Vical Inc. | 12-12-1991 | | |
| | BB | WO | 91/19721 | A1 | Glazier | 12-26-1991 | | |
| | BC | WO | 93/00910 | A1 | Vical Inc. | 01-21-1993 | | |
| | BD | WO | 94/26273 | A1 | Hostetler | 11-24-1994 | | |
| | BE | WO | 96/15132 | A1 | Regents of the Univ. of California | 05-23-1996 | | |
| | BF | WO | 99/15194 | A1 | Schering Corporation | 04-01-1999 | | |
| | BG | WO | 99/43691 | A1 | Emory; U. Georgia Res. Found. | 09-02-1999 | | |
| | BH | WO | 99/45016 | A2 | Metabasis Therapeutics Inc. | 09-10-1999 | | |
| | BI | WO | 99/59621 | A1 | Schering Corporation | 11-25-1999 | | |
| | BJ | WO | 99/64016 | A1 | Hoffman-La Roche AG | 12-16-1999 | | |
| | BK | WO | 00/24355 | A1 | Smith & Nephew Kinetic | 05-04-2000 | | |
| | BL | WO | 00/37110 | A2&3 | Schering Corporation | 06-29-2000 | | |
| | BM | WO | 00/52015 | A2&3 | Metabasis Therapeutics | 09-08-2000 | | |
| | BN | WO | 01/18013 | A1 | Metabasis Therapeutics | 03-15-2001 | | |
| | BO | WO | 01/32153 | A2 | Biochem Pharma | 10-05-2001 | | |
| | BP | WO | 01/47935 | A2&3 | Metabasis Therapeutics | 07-05-2001 | | |
| | BQ | WO | 01/60315 | A2 | Biochem Pharma | 08-23-2001 | | |
| | BR | WO | 01/79246 | A2&3 | Pharmasset | 10-25-2001 | | |
| | BS | WO | 01/81359 | A1 | Schering Corporation | 11-01-2000 | | |
| | BT | WO | 01/90121 | A2&3 | Novirio (Idenix); Univ. ... Cagliari | 11-29-2000 | | |
| | BU | WO | 01/92282 | A2&3 | Novirio (Idenix); Univ. ... Cagliari | 06-12-2001 | | |
| | BV | WO | 01/96353 | A2&3 | Novirio Pharm. (Idenix); C.N.R.S. | 21-20-2001 | | |
| | BW | WO | 02/057287 | A2&3 | Merck; Isis Pharmaceuticals | 07-25-2002 | | |
| | BX | WO | 02/057425 | A2 | Merck; Isis Pharmaceuticals | 07-25-2002 | | |
| | BY | WO | 02/18404 | A2&3 | Hoffman-La Roche AG | 03-07-2002 | | |
| | BZ | WO | 02/32414 | A2&3 | Schering Corporation | 04-25-2002 | | |
| ✓ | BAA | WO | 02/32920 | A2 | Pharmasset | 04-25-2002 | | |
| | BAB | WO | 02/48165 | A2&3 | Pharmasset | 06-20-2002 | | |
| TM | BAC | WO | 03/024461 | A1 | Schering Corporation | 03-27-2003 | | |

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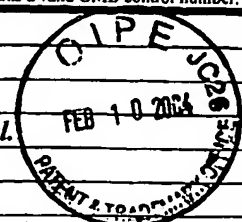
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| | | | | Group Art Unit | 1646 |
| | | | | Examiner Name | Unassigned |
| | 3 | of | 7 | Attorney Docket Number | 06171.105088 IDX 1031 |



| FOREIGN PATENT DOCUMENTS | | | | | | | | |
|--------------------------|-----------------------|-------------------------|-----------|-----------------------------------|---|--|---|----------------|
| Examiner Initials * | Cite No. ¹ | Foreign Patent Document | | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages/ Relevant Figures Appear | T ⁶ |
| | | Office ³ | Number | Kind Code ³ (if known) | | | | |
| TM | CA | WO | 04/003138 | A2 | Merck & Co., Isis Pharmaceutical | 01-08-2004 | | |
| TM | CB | WO | 04/007512 | A2 | Merck & Co., Isis Pharmaceutical | 01-22-2004 | | |
| TM | CC | WO | 04/009020 | A2 | Merck & Co., Isis Pharmaceutical | 01-29-2004 | | |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | | | | | | |
|---|-----------------------|---|--|--|--|--|--|----------------|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | | | | | | T ⁶ |
| TM | CD | BAGINSKI, S. G. <i>et al.</i> , "Mechanism of action of a pestivirus antiviral compound," <i>PNAS USA</i> , 97(14): 7981-7986 (2000). | | | | | | |
| | CE | BATTAGLIA, A.M. <i>et al.</i> , "Combination Therapy with Interferon and Ribavirin in the Treatment of Chronic Hepatitis C Infection", <i>Ann. Pharmacother.</i> , 34:487-494 (2000). | | | | | | |
| | CF | BERENGUER, M. <i>et al.</i> , "Hepatitis C virus in the transplant setting", <i>Antivir. Ther.</i> , 3 (Suppl 3):125-136 (1998). | | | | | | |
| | CG | BERMAN, E. <i>et al.</i> , "Synergistic cytotoxic effect of azidothymidine and recombinant interferon alpha on normal human bone marrow progenitor cells," <i>Blood</i> , 74(4):1281-1286 (1989) | | | | | | |
| | CH | BHAT <i>et al.</i> (Oral Session V, Hepatitis C Virus, Flaviviridae, 2003 (Oral Session V, Hepatitis C Virus, Flaviviridae; 16 th International Conference on Antiviral Research (April 27, 2003, Savannah, Ga.); p A75). | | | | | | |
| | CI | BROWNE, M.J., <i>et al.</i> , "2',3'-didehydro-3'-deoxythymidine (d4T) in patients with AIDS or AIDS-Related Complex: A Phase I trial," <i>J. Infect. Dis.</i> , 167(1):21-29 (1993). | | | | | | |
| | CJ | COLACINO, J. M., "Review article: Mechanisms for the anti-hepatitis B virus activity and mitochondrial toxicity of fialuridine (FIAU)," <i>Antiviral Res.</i> , 29(2-3): 125-39 (1996). | | | | | | |
| | CK | CUI, L., <i>et al.</i> , "Cellular and molecular events leading to mitochondrial toxicity of 1-(2-deoxy-2-fluoro-1-β-D-arabinofuranosyl)-5-iodouracil in human liver cells," <i>J. Clin. Invest.</i> , 95:555-563 (1995). | | | | | | |
| | CL | DAVIS, G.L., "Current therapy for chronic Hepatitis C," <i>Gastroenterology</i> 118:S104-S114 (2000). | | | | | | |
| | CM | De FRANCESCO, R., <i>et al.</i> , "Approaching a new era for hepatitis C virus therapy: inhibitors of the NS3-4A serine protease and the NS5B RNA-dependent RNA polymerase," <i>Antiviral Research</i> , 58: 1-16 (2003). | | | | | | |
| TM | CN | De LOMBAERT, S., <i>et al.</i> , "N-Phosphonomethyl dipeptides and their phosphonate prodrugs, a new generation of neutral endopeptidase (NEP, EC 3.4.24.11) inhibitors," <i>J. Med. Chem.</i> , 37:498-511 (1994). | | | | | | |

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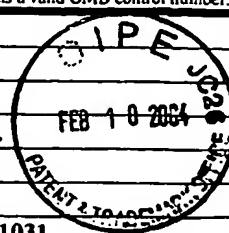
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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

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|---------------------|-----------------------|---|----------------|
| TM | DA | DORNSIFE, R.E., et al., "In vitro potency of inhibition by antiviral drugs of hematopoietic progenitor colony formation correlates with exposure at hemotoxic levels in Human Immunodeficiency Virus-positive humans," <i>Antimicrob. Agents Chemother.</i> , 40(2):514-519 (1996). | |
| | DB | DYMOCK, B.W., et al., "Review: Novel approaches to the treatment of hepatitis C virus infection," <i>Antiviral Chemistry & Chemotherapy</i> , 11(2):79-95 (2000). | |
| | DC | ELDRUP et al. (Oral Session V, Hepatitis C Virus, Flaviviridae; 16 th International Conference on Antiviral Research (April 27, 2003, Savannah, Ga.). | |
| | DD | FARKAS, J., et al., "Nucleic acid components and their analogues. XCIV. Synthesis of 6-amino-9-(1-deoxy-β-D-psicofuranosyl)purine", <i>Collect. Czech. Chem. Commun.</i> 32:2663-2667 (1967). | |
| | DE | FARKAS, J., et al., "Nucleic acid components and their analogues. LXXIX. Synthesis of methyl 1-deoxy-D-psicofuranosides substituted at C ₍₁₎ with halo atoms or a mercapto group," <i>Collect. Czech. Chem. Commun.</i> , 31:1535-1543 (1996). | |
| | DF | FARQUHAR, D., et al., "Synthesis and biological evaluation of neutral derivatives of 3-fluoro-2'-deoxyuridine 5'-phosphate," <i>J. Med. Chem.</i> 26: 1153 (1983); | |
| | DG | FARQUHAR, D., et al., "Synthesis and biological evaluation of 9-[5'-(2-oxo-1,3,2-oxazaphosphorinan-2-yl)-β-D-arabinosyl]adenine and 9-[5'-(2-oxo-1,3,2-dioxazaphosphorinan-2-yl)-β-D-arabinosyl]adenine: Potential neutral precursors of 9-[β-D-arabinofuranosyl]adenine 5'-monophosphate," <i>J. Med. Chem.</i> 28:1358-1381 (1985). | |
| | DH | FERRARI R., et al., "Characterization of soluble hepatitis C virus RNA-dependent RNA polymerase expressed in <i>Escherichia coli</i> ," <i>Journal of Virology</i> , 73(2), 1649-1654 (1999). | |
| | DI | FISCHL, M.A., et al., "Zalcitabine compared with zidovudine in patients with advanced HIV-1 infection who received previous zidovudine therapy," <i>Ann. Intern. Med.</i> , 18(10):762-769 (1993). | |
| | DJ | FREED, J.J., et al., "Evidence for acyloxymethyl esters of pyrimidine 5'-deoxyribonucleotides as extracellular sources of active 5'-deoxyribonucleotides in cultured cells," <i>Biochemical Pharmacology</i> , 38:3193-3198 (1989). | |
| | DK | GUNIC, E., et al., "Synthesis and cytotoxicity of 4'-C-and 5'-C-substituted Toyocamycins," <i>Bioorg. Med. Chem.</i> , 9:163-170 (2001). | |
| ✓ | DL | HARRY-O'KURU, R.E., J.M. Smith, and M.S. Wolfe, "A short, flexible route toward 2'-C-branched ribonucleosides," <i>J.Org. Chem.</i> 62, 1754-1759 (1997). (Scheme 11). | |
| TM | DM | HOSTETLER, K.Y., et al., "Synthesis and antiretroviral activity of phospholipids analogs of azidothymidine and other antiviral nucleosides," <i>J. Biol. Chem.</i> , 265:6112-6117 (1990) | |

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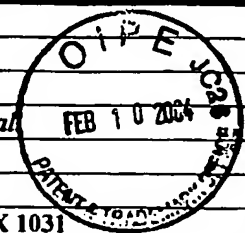
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|---------------------|-----------------------|---|----------------|
| TM | EA | HOSTETLER, K. Y., et al., "Greatly enhanced inhibition of Human Immunodeficiency Virus Type I replication in CEM and HT4-6C cells by 3'-deoxythymidine diphosphate dimyristoylglycerol, a lipid prodrug of 3'-deoxythymidine," <i>Antimicrob. Agents Chemother.</i> , 36:2025-2029 (September 1992). | |
| | EB | HUNSTON, R. N., et al., "Synthesis and biological properties of some cyclic phosphotriesters derived from 2'-deoxy-5-fluorouridine," <i>J. Med. Chem.</i> 27:440-444 (1984). | |
| | EC | JONES, G. H.; Moffatt, J. G., <i>Methods in Carbohydrate Chemistry</i> ; Whisler, R. L. and Moffatt, J. L. Eds; Academic Press: New York, 1972; 315-322 | |
| | ED | JONES, G. H., et al., "4'-substituted nucleosides. 5. Hydroxymethylation of nucleoside 5'-aldehydes," <i>J. Org. Chem.</i> , 44:1309-1317 (1979). | |
| | EE | KHAMNEI, S., "Neighboring group catalysis in the design of nucleotide prodrugs," <i>J. Med. Chem.</i> , 39:4109-4115 (1996). | |
| | EF | KUCERA, L. S., et al., "Novel membrane-interactive ether lipid analogs that inhibit infectious HIV-1 production and induce defective virus formation," <i>AIDS Res. Hum. Retro Viruses</i> , 6:491-501 (1990). | |
| | EG | KURTZBERG J., et al., "Differential toxicity of carbosvir and AZT to human bone marrow hematopoietic progenitor cells in vitro," <i>Exp. Hematol.</i> , 18(10):1094-1096 (1990). | |
| | EH | LEONARD, N. J., et al., "5-Amino-5-deoxyribose derivatives. Synthesis and use in the preparation of "reversed" nucleosides" <i>J. Heterocycl. Chem.</i> , 3:485-489 (December 1966). | |
| | EI | LERZA, R., et al., "In vitro synergistic inhibition of human bone marrow hemopoietic progenitor growth by a 3'-azido-3'-deoxy-thymidine, 2',3'-dideoxycytidine combination," <i>Exp. Hematol.</i> , 25(3):252-255 (1997). | |
| | EJ | LEWIS W., et al., "Zidovudine induces molecular, biochemical, and ultrastructural changes in rat skeletal muscle mitochondria," <i>J. Clin. Invest.</i> , 89(4):1354-1360 (1992). | |
| | EK | LEWIS, L. D., et al., "Ultrastructural changes associated with reduced mitochondrial DNA and impaired mitochondrial function in the presence of 2'3'-dideoxycytidine," <i>Antimicrob. Agents Chemother.</i> , 36(9):2061-2065 (1992). | |
| | EL | LEWIS, W., et al., "Fialuridine and its metabolites inhibit DNA polymerase γ at sites of multiple adjacent analog incorporation, decrease mtDNA abundance, and cause mitochondrial structural defects in cultured hepatoblasts," <i>Proceedings of the National Academy of Sciences, USA</i> , 93(8): 3592-7 (1996). | |
| ✓ | EM | LOHMANN V., et al., "Biochemical and kinetic analyses of NS5B RNA-dependent RNA polymerase of the Hepatitis C virus," <i>Virology</i> , 249, 108-118 (1998). | |
| TM | EN | LUH, T.-Y., et al., "A convenient method for the selective esterification of amino-alcohols," <i>Synthetic Communications</i> , 8(5):327-333 (1978). | |

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| Examiner Signature | /Traviss McIntosh III/ (04/28/2006) | Date Considered | 04/28/2006 |
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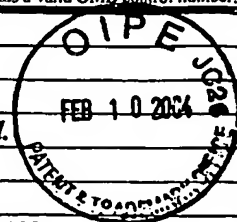
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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i> | | Application Number | 10/607,909 |
| | | Filing Date | June 27, 2003 |
| | | First Named Inventor | Sommadossi <i>et al.</i> |
| | | Group Art Unit | 1646 |
| | | Examiner Name | Unassigned |
| | | Attorney Docket Number | 06171.105088 IDX 1031 |
| 6 | of | 7 | |



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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
|---------------------|-----------------------|---|----------------|
| TM | FA | MCCORMICK, J., <i>et al.</i> , "Structure and total synthesis of HF-7, a neuroactive glyconucleoside disulfate from the funnel-web spider <i>Hololena curta</i> ," <i>J. Am. Chem. Soc.</i> , 121(24), 5661-5664 (1999). | |
| | FB | MCKENZIE, R., <i>et al.</i> , "Hepatic failure and lactic acidosis due to fialuridine (FIAU), an investigational nucleoside analogue for chronic hepatitis B," <i>N. Engl. J. Med.</i> , 333(17):1099-1105 (1995). | |
| | FC | MEIER, C., <i>et al.</i> , "Cyclic saligenyl phosphotriesters of 2',3'-dideoxy-2',3'-didehydrothymidine (d4T) – A new pro-nucleic approach," <i>Bioorganic & Med. Chem. Letters</i> 7(2):99-104 (1997). | |
| | FD | MEDINA, D. J., <i>et al.</i> , "Comparison of mitochondrial morphology, mitochondrial DNA content, and cell viability in cultured cells treated with three anti-Human Immunodeficiency Virus dideoxynucleosides," <i>Antimicrob. Agents Chemother.</i> , 38(8):1824-8 (1994). | |
| | FE | MEYER, R.B., Jr., <i>et al.</i> , "2'-O-Acyl-6-thioinosine cyclic 3',5'-phosphates as prodrugs of thioinosinic acid," <i>J. Med. Chem.</i> 22: 811-815 (1979). | |
| | FF | NEIDLEIN, R., <i>et al.</i> , "Mild preparation of 1-benzyluxyiminophosphonic dichlorides: Application to the synthesis of cyclic phosphonic diesters and cyclic monoester amides," <i>Heterocycles</i> 35:1185-1203 (1993). | |
| | FG | NUTT, R.F., <i>et al.</i> , "Branched-chain sugar nucleosides. III. 3'-C-methyladenine," <i>J. Org. Chem.</i> , 33:1789-1795 (1968). | |
| | FH | OLSEN, <i>et al.</i> (Oral Session V, Hepatitis C Virus, Flaviviridae; 16 th International Conference on Antiviral Research (April 27, 2003, Savannah, Ga.) p A76). | |
| | FI | PAN-ZHOU, X-R, <i>et al.</i> , "Differential effects of antiretroviral nucleoside analogs on mitochondrial function in HepG2 cells," <i>Antimicrob. Agents Chemother.</i> 44:496-503 (2000). | |
| | FJ | PIANTADOSI, C., <i>et al.</i> , "Synthesis and evaluation of novel ether lipid nucleoside conjugates for anti-HIV-1 activity," <i>J. Med. Chem.</i> 34:1408-1414 (1991). | |
| | FK | RICHMAN, D.D., <i>et al.</i> , "The toxicity of azidothymidine (AZT) in the treatment of patients with AIDS and AIDS-Related Complex," <i>N. Engl. J. Med.</i> , 317(4):192-197 (1987). | |
| | FL | SOMMADOSSI J-P, <i>et al.</i> , "Comparison of cytotoxicity of the (-)- and (+)- enantiomer of 2',3'-dideoxy-3'-thiacytidine in normal human bone marrow progenitor cells," <i>Biochemical Pharmacology</i> 44(10):1921-1925 (1992). | |
| | FM | SOMMADOSSI J-P, <i>et al.</i> , "Toxicity of 3'-azido-3'-deoxythymidine and 9-(1,3-dihydroxy-2-propoxymethyl)guanine for normal human hematopoietic progenitor cells in vitro," <i>Antimicrobial Agents and Chemotherapy</i> , 31:452-454 (1987). | |
| TM | FN | STARRETT, J.E.Jr., <i>et al.</i> , "Synthesis, oral bioavailability determination, and <i>in vitro</i> evaluation of prodrugs of the antiviral agents 9-(2-(phosphonomethoxy)ethyl]adenine (PMEA)," <i>J. Med. Chem.</i> 37: 1857-1864 (1994). | |

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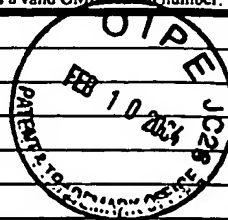
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| | | | | Filing Date | June 27, 2003 |
| | | | | First Named Inventor | Sommadossi et al. |
| | | | | Group Art Unit | 1646 |
| | | | | Examiner Name | Unassigned |
| | 7 | of | 7 | Attorney Docket Number | 06171.105088 IDX 1031 |



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| TM | GA | WEINBERG, R.S., et al., "Effect of antiviral drugs and hematopoietic growth factors on <i>in vitro</i> erythropoiesis," <i>Mt. Sinai J. Med.</i> 1998;65(1):5-13. | |
| TM | GB | YARCHOAN, R., et al. "Long-term toxicity / activity profile of 2',3'-dideoxyinosine in AIDS or AIDS-related complex," <i>The Lancet</i> , 336(8714):526-529 (1990). | |
| TM | GC | YOSHIDA Y, et al., "Reversal of azidothymidine-induced bone marrow suppression by 2',3'-dideoxythymidine as studied by hemopoietic clonal culture," <i>AIDS Res. Hum. Retroviruses</i> , 6(7):929-932 (1990). | |
| TM | GD | ZON, G., "Cyclophosphamide Analogues," Chapter 4 in <i>Progress in Medicinal Chemistry</i> , Vol. 19, G.P. Ellis and G.B. West, Eds., pp. 205-246 (1982). | |

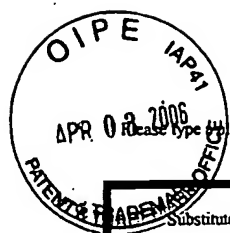
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| Application Number | 10/607,909 |
| Filing Date | June 27, 2003 |
| First Named Inventor | Sommadossi <i>et al.</i> |
| Group Art Unit | 1623 |
| Examiner Name | Traviss C. McIntosh III |
| Attorney Docket Number | 06171.105088 IDX 1031 |

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U.S. PATENT DOCUMENTS

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|------------------------|--------------------------|----------------------|-------------------------|--|--|---|----------------|
| | | Number | Kind Code (if known) | | | | |
| TM | AA | 6,348,587 | | Schinazi <i>et al.</i> | 02-19-2002 | | |
| | AB | 2002/0095033 | | Ramasamy <i>et al.</i> | 07-18-2002 | | |
| | AD | 6,495,677 | | Ramasamy <i>et al.</i> | 12-17-2002 | | |
| | AE | 2002/0198171 | | Schinazi <i>et al.</i> | 12-26-2002 | | |
| | AF | 2003/0008841 | | Devos <i>et al.</i> | 01-09-2003 | | |
| | AH | 6,573,248 | | Ramasamy <i>et al.</i> | 06-03-2003 | | |
| | AI | 2003/0225029 | | Stuyver <i>et al.</i> | 12-04-2003 | | |
| | AJ | 6,660,721 | | Devos <i>et al.</i> | 12-09-2003 | | |
| | AL | 2004/0002476 | | Stuyver <i>et al.</i> | 01-01-2004 | | |
| | AM | 2004-0023921 | | Yao <i>et al.</i> | 02-05-2004 | | |
| | AN | 2004/0059104 | | Cook <i>et al.</i> | 03-25-2004 | | |
| | AO | 2004/0063658 | | Roberts <i>et al.</i> | 04-01-2004 | | |
| | AP | 2004/0067901 | | Bhat <i>et al.</i> | 04-08-2004 | | |
| | AQ | 2004/0072788 | | Bhat <i>et al.</i> | 04-15-2004 | | |
| | AR | 2004/0110718 | | Devos <i>et al.</i> | 06-10-2004 | | |
| | AS | 2004/0110717 | | Bhat <i>et al.</i> | 06-10-2004 | | |
| | AU | 2004/0147464 | | Roberts <i>et al.</i> | 07-29-2004 | | |
| | AV | 6,777,395 | | Bhat <i>et al.</i> | 08-17-2004 | | |
| | AW | 6,784,166 | | Devos <i>et al.</i> | 08-31-2004 | | |
| | AX | 2004/0266722 | | Devos <i>et al.</i> | 12-30-2004 | | |
| | AY | 2005/0009737 | | Clark <i>et al.</i> | 01-13-2005 | | |
| | AZ | 6,846,810 | | Martin <i>et al.</i> | 01-25-2005 | | |
| | AAA | 2005/0119200 | | Roberts <i>et al.</i> | 06-02-2005 | | |
| | AAB | 6,911,424 | | Schinazi <i>et al.</i> | 06-28-2005 | | |
| | AAC | 2003/0060400 | | LaColla <i>et al.</i> | 03-27-2003 | | |
| TM | AAD | 2003/0050229 | | LaColla <i>et al.</i> | 03-13-2003 | | |

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| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Traviss C. McIntosh III |
| | | | | Attorney Docket Number | 06171.105088 IDX 1031 |
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| FOREIGN PATENT DOCUMENTS | | | | | | | | |
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| Examiner Initials * | Cite No. ¹ | Foreign Patent Document | | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages/ Relevant Figures Appear | T ⁶ |
| | | Office ³ | Number | Kind Code ² (if known) | | | | |
| TM | BA | WO | 03/051899 | | Girardet <i>et al.</i> | 06-26-2003 | | |
| ↓ | BB | WO | 03/061385 | | An <i>et al.</i> | 07-31-2003 | | |
| | BC | WO | 03/061576 | | An <i>et al.</i> | 07-31-2003 | | |
| | BD | WO | 03/062256 | | An <i>et al.</i> | 07-31-2003 | | |
| | BE | WO | 03/062257 | | An <i>et al.</i> | 07-31-2003 | | |
| | BF | WO | 03/062255 | | Hong <i>et al.</i> | 07-31-2003 | | |
| | BG | WO | 04/000858 | | Carroll <i>et al.</i> | 12-31-2003 | | |
| | BH | WO | 03/105770 | | Bhat Balkrishen | 12-24-2003 | | |
| | BI | WO | 06/012440 | | Wang <i>et al.</i> | 02-02-2006 | | |
| | BJ | GB | 1163 103 | | Merck | 09-04-1969 | | |
| | BK | GB | 1163 102 | | Merck | 09-04-1969 | | |
| | BL | GB | 1209 654 | | Merck | 10-21-1970 | | |
| | BM | EP | 0747 389 | | Taiho Pharmaceutical Co. Ltd. | 12-11-1996 | | |
| | BN | FR | 1521076 | | Merck & Co. | 04-12-1968 | | |
| | BO | JP | 06211890 | | Yamasa Shoyu Co. Ltd | 08-02-1994 | | |
| | TM | BP | JP | 06228186 | | Yamasa Shoyu Co. Ltd | 08-16-1994 | |

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| TM | BQ | AWANO, H., <i>et al.</i> , "Nucleosides and nucleotides. Part 144. Synthesis and antiviral activity of 5-substituted (2'S)-2'-deoxy-2'-C-methylcytidines and -uridines," <i>Archiv der Pharmazie</i> , VCH Verlagsgesellschaft mbh, Weinheim, DE. 329 :66-72 (February 1, 1996). | | |
| TM | BR | BEIGELMAN, L.N., <i>et al.</i> , "A general method for synthesis of 3'-C-alkylnucleosides," <i>Nucleic Acids Symp. Ser.</i> , 9:115-118 (1981). | | |
| TM | BS | BIANCO, <i>et al.</i> , "Synthesis of a New Carbocyclic Nucleoside Analog", <i>Tetrahedron Letters</i> , vol. 38. no. 36., Set 8 1997 | | |

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| TM | CA | CAPPELLACCI, L., <i>et al.</i> , "Ribose-modified nucleosides as ligands for adenosine receptors: Synthesis, conformational analysis, and biological evaluation of 1'-C-methyl adenosine analogues," <i>J. Med. Chem.</i> , 45:1196-1202 (2002). | |
| | CB | CHIACCHIO, ., <i>et al.</i> , "Steroselective Synthesis of 2'-Amino-2',3'-Dideoxynucleosides by Nitrone 1,3-Dipolar Cycloaddition: A New Efficient Entry Toward d4T and its 2-Methyl Analogue", <i>J. Org. Chem. vol. 64: 28-36 (1999)</i> . | |
| | CC | CZERNECKI S. <i>et al.</i> , "Synthesis of 2'-deoxy-2'-spirocyclopropyl Cytidine as Potential Inhibitor of Ribonucleotide Diphosphate Reductase", <i>Can. J. Chem.</i> , 71: 413-416 (1993). | |
| | CD | FEDEROV, I.I., <i>et al.</i> , "3'-C-branched 2'-deoxy-5-methyluridines: Synthesis, enzyme inhibition, and antiviral properties," <i>J. Med. Chem.</i> , 35:4567-4575 (1992). | |
| | CE | FRANCHETTI, P., <i>et al.</i> , "2'-C-Methyl analogues of selective adenosine receptor agonists: synthesis and binding studies," <i>J. Med. Chem.</i> , 41(10):1708-1715 (1998). | |
| | CF | HASSAN, A.E.A. , <i>et al.</i> , "Nucleosides and Nucleotides. 156. Chelation-Controlled and Nonchelation-Controlled Diastereofacial Selective Thiophenol Addition Reactions at the 2'-Position of 2'-[(Alkoxycarbonyl)methylene]-2'-deoxyuridines: Conversion of (Z)-2'-[(Alkoxycarbonyl)methylene]-2'-Deoxyuridines into Their (E)-Isomers", <i>J. Org. Chem.</i> , 62: 11-17 (1997). | |
| | CG | HASSAN, A.E.A. , <i>et al.</i> , "Nucleosides and Nucleotides. 151. Conversion of (Z)-2'-(Cyanomethylene)-2'-Deoxyuridines into Their (E)-Isomers via Addition of Thiophenol to the Cyanomethylene Moiety Followed by Oxidative Syn-elimination Reactions", <i>J. Org. Chem.</i> , 61: 6261-6267 (1996). | |
| | CH | HOSSAIN N. , <i>et al.</i> , "Synthesis of 2'- And 3'-Spiro-Isoxazolidine Derivatives of Thymidine & Their Conversions To 2', 3'-Dideoxy-2', 3'-Didehydro-3'-C-Substituted Nucleosides by Radical Promoted Fragmentation", <i>Tetrahedron</i> , 49: 10133-10156 (1993). | |
| | CI | HATTORI, H., <i>et al.</i> , "Nucleosides and nucleotides. 158.," <i>J. Med. Chem.</i> , 39:5005-5011 (1996). | |
| | CJ | HREBABECKY, H., <i>et al.</i> , "Nucleic acid components and their analogues. CXLIX. Synthesis of pyrimidine nucleosides derived from 1-deoxy-D-psicose," <i>Collect. Czech. Chem. Commun.</i> , 37:2059-2065 (1972). | |
| | CK | HREBABECKY, H., <i>et al.</i> "Synthesis of 7- and 9β-D-psicofuranosylguanine and their 1'-deoxy derivatives," <i>Collect. Czech. Chem. Commun.</i> , 39:2115-2123 (1974). | |
| | CL | JOHNSON, C.R., <i>et al.</i> , "3'-C-Trifluoromethyl ribonucleosides," <i>Nucleosides & Nucleotides</i> , 14(1&2):185-194 (1995). | |
| ✓ | CM | LI, Nan.-Sheng., <i>et al.</i> , "2'-C-branched ribonucleosides. 2. Synthesis of 2'-C-β-trifluoromethyl pyrimidine ribonucleosides," <i>Organic Letters</i> , 3(7):1025-1028 (2001). | |
| TM | CN | MAHMOUDIAN M. <i>et al.</i> , "A Versatile Procedure for the Generation of Nucleoside 5-'Carboxylic Acids Using Nucleoside Oxidase", <i>Tetrahedron</i> , 54: 8171-8182 (1998). | |

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| | | Filing Date | June 27, 2003 |
| | | First Named Inventor | Sommadossi <i>et al.</i> |
| | | Group Art Unit | 1623 |
| | | Examiner Name | Traviss C. McIntosh III |
| | | Attorney Docket Number | 06171.105088 IDX 1031 |
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| TM | DA | MATSUDA, A., <i>et al.</i> , "Radical deoxygenation of <u>tert</u> -alcohols in 2'-branched-chain sugar pyrimidine nucleosides: Synthesis and antileukemic activity of 2'-deoxy-2'(S)-methylcytidine," <i>Chem. Pharm. Bull.</i> , 35(9):3967-3970 (1987). | |
| | DB | MATSUDA, A., <i>et al.</i> , "Nucleosides and Nucleotides. 94. Radical deoxygenation of <i>tert</i> -alcohols in 1-(2-C-alkylpentofuranosyl)pyrimidines: Synthesis of (2'S)-2'-deoxy-2'-C-methylcytidine, an antileukemic nucleoside," <i>J. Med. Chem.</i> , 34:234-239 (1991). | |
| | DC | MIKHAILOV, S.N., <i>et al.</i> , "Synthesis and properties of 3'-C-methylnucleosides and their phosphoric esters," <i>Carbohydrate Research</i> , 124:75-96 (1983). | |
| | DD | MURAL, Y., <i>et al.</i> , "A synthesis and an X-ray analysis of 2'-C-, 3'-C- and 5'-C-methylsangivamycins," <i>Heterocycles</i> , 1(33):391-404 (1992). | |
| | DE | ONG, S.P., <i>et al.</i> , "Synthesis of 3'-C-methyladenosine and 3'-C-methyluridine diphosphates and their interaction with the ribonucleoside diphosphate reductase from <i>Corynebacterium nephridii</i> ," <i>Biochemistry</i> , 31(45):11210-11215 (1992). | |
| | DF | ROSENTHAL, A., <i>et al.</i> , "Branched-chain sugar nucleosides. Synthesis of 3'-C-ethyl (and 3'-C-butyl)uridine <i>Carbohydrate Research</i> , 79:235-242 (1980). | |
| | DG | SCHMIT, C., "Synthesis of 2'-deoxy-2'- α -monofluoromethyl and trifluoromethylnucleosides," <i>Synlett</i> , Thieme Verlag, Stuttgart, DE, (4):241-242 (1994). | |
| | DH | SHARMA, P.K., <i>et al.</i> , "Synthesis of 3'-trifluoromethyl nucleosides as potential antiviral agents," <i>Nucleosides, Nucleotides and Nucleic Acids</i> , 19(4):757-774 (2000). | |
| | DI | TRONCHET, J.M.J.; <i>et al.</i> , "72. Synthèse et désamination enzymatique des C-hydroxyméthyl-3'-et C-méthyl-3'-beta-D-xylofuranosyl-9-adenin es," <i>Helv. Chim. Acta</i> , 62:689-695 (1979). | |
| | DJ | VELAZQUEZ, S., <i>et al.</i> , "Synthesis of [1-[3',5'-bis-O-(<i>tert</i> -butyldimethylsilyl)- β -D-arabino- and β -D-ribofuranosyl] cytosine]-2'-spiro-5'-(4"-amino-1", 2"-oxathiole-2", 2"-dioxide). Analogues of the Highly Specific Anti-HIV-1 agent TSAO-T", <i>Tetrahedron</i> , 50: 11013-11022 (1994). | |
| TM | DK | WOLF, J., <i>et al.</i> , "New 2'-C-branched-chain sugar nucleoside analogs with potential antiviral or antitumor activity," <i>Synthesis</i> , Georg Thieme Verlag, Stuttgart, DE, (8):773-778 (August 1992). | |

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